

Environment Ontario

MINISTRY OF ENVIRONMENT

1971 - 72 Cottage Pollution Control Program
Interim Report

Private Waste and Water
Management Branch

August 1972



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FOREWORD

THE FIELD WORK INCLUDED IN THIS REPORT WAS COMPLETED BY THE PUBLIC HEALTH ENGINEERING SERVICE UNDER THE DEPARTMENT OF HEALTH.

ON DECEMBER 1st, 1971 THE PUBLIC HEALTH ENGINEERING SERVICE WAS TRANSFERED FROM THE DEPARTMENT OF HEALTH TO THE DEPARTMENT OF THE ENVIRONMENT WHEN IT WAS ESTABLISHED AS THE PRIVATE WASTE & WATER MANAGEMENT BRANCH.

SINCE APRIL 1st, 1972, WHEN THE DEPARTMENT OF THE ENVIRONMENT AND THE FORMER ONTARIO WATER RESOURCES COMMISSION WERE COMBINED INTO THE NEW MINISTRY OF THE ENVIRONMENT, BOTH THE COTTAGE WORK AS REPORTED HEREIN AND THE LAKE WATER QUALITY WORK ARE UNDER UNIFIED DIRECTION IN THE WATER MANAGEMENT DIVISION.

A. Scope of Report

This progress report deals with the activities of the detection and abatement groups of the Cottage Pollution Control Program and the results for the period between April, 1971 and November, 1971.

B. Background

The work now being reported is a continuation of a program initiated in the summer of 1970, and reported upon in April, 1972.

The purpose of the program is to inspect private sewage disposal systems and correct those systems found to be polluting recreational lakes or causing other health hazards or environmental damage.

Associated lake water quality surveys were carried out to establish water quality profiles on the lakes in terms of bacteriological, chemical, and other biological parameters, to permit definition of a frame of reference which will enable significant long-term trends to be recognized. This work is not reported upon herein.

C. 1. Areas of Work 1971-72 Detection

The program areas selected for inspection in the summer of 1971 were lakes in the District Municipality of Muskoka, the Trent Waterways System, the Mississippi Valley Watershed, the Bancroft Area, the Rideau Valley Watershed, and the Cataraqui Region.

This selection included completion of inspections started in 1970 in the Trent Waterways System and a significant workload in the Rideau Valley and Cataraqui Watersheds. An attempt was made to carry out inspections on lakes where a specific request for surveys had been received.

2. Procedures

a. Detection of Defective Systems

(i) During the winter of 1971, staff of the then Public Health Engineering Service carried out a reconnaissance and mapping program by snowmobile on most of the lakes to be inspected during the summer.

The purpose of this winter work was to gather information to enable scheduling of the summer field work and to prepare the necessary maps. In general, the snowmobile crews would: count the number of establishments on the lake; photograph and describe every one hundredth establishment on the shoreline; plot the cottages on maps; and, locate non-cottage properties such as motels, trailer parks and marinas.

The snowmobile crews were supervised by the same Public Health Inspector who would be responsible for that area in the summer. The familiarity with the area, thus gained, proved an invaluable aid in the summer.

(ii) Data obtained from the snowmobile work, as well as that from Cottage Owners' Associations and other agencies was used to prepare a work schedule for the student crews in the summer. It is interesting to note that the re-location of crews from one lake to another was normally made within 2 - 3 days of the projected time.

(iii) Commencing on May 10, 1971, students were given a two-week training course by staff of the Cottage Pollution Control Program.

The course included one week of lectures in Toronto followed by one week of field training at Young's Point on Clear Lake.

(iv) When a survey crew initially arrived on a lake for the first time, the normal procedures were to: speak to the executive of the Cottage Association to inform them of the presence of the crew and purpose; set up a field office; rent boats and

arrange dockage; arrange for a boat tour of the lake with a guide or local resident to familiarize students with the lake, the location of their section of cottages (as determined by the snowmobile survey), and the various navigational markers and hazards.

Following this, each student would prepare a description of each establishment in his section, numbered according to the snowmobile survey. This description log is invaluable for locating a specific cottage for follow-up inspection or correction.

(v) Following this, inspections commenced in assigned areas. Each occupant was given copies of several Department pamphlets. The occupant was interviewed to seek information concerning his waste producing fixtures, waste disposal system, source of drinking water, number of occupants and so on.

The various systems were inspected and reports on their size, location, design and construction were prepared.

Soil borings were made in the area of tile field and other sub-surface disposal systems to provide data on the nature and depth of soil.

A sample of the water used for drinking was obtained. Each owner having a drinking water sample which showed unsatisfactory coliform counts was informed to this effect by mail.

Water samples were taken from the shoreline opposite the waste disposal system and in the bathing area.

Water samples were also taken further off-shore in front of every fifth cottage to provide a control on the shoreline samples.

Water samples for chemical analysis were taken at inlets and outlets to the lake.

All of the above information was reported on a detailed questionnaire which has been coded for key punching. Arrangements were made for the design of a computer programme to tabulate and analyze the collected data.

(vi) Completed questionnaires, water sampling forms and other data were turned in to the clerks in each field office for filing, recording and checking.

When results of the water samples were received from the laboratory, they were entered in the appropriate place on the questionnaire by the clerk.

At this time, the crew supervisor, normally a Senior Public Health Inspector, classified each waste disposal system, as discussed below, or obtained more information as necessary. Unfortunately, the supervisors, because of their many duties, were not able to keep up to date with the classifications. Consequently, many classifications were made after the field work had been completed.

(vii) Each waste disposal system was classified in one of the following categories:

Satisfactory

The system meets or exceeds the various standards and regulations, and is not polluting.

Public Health Nuisance

A system is classified as a "Public Health Nuisance" if any water, such as laundry water, kitchen sink water, shower bath or shower tub water, or toilet wastes, all of which are included in the terms "sewage", is exposed on the surface of the ground even if it does not apparently drain toward the lake. Kitchen waste water thrown on the ground or tile beds over which sewage is ponding are examples of health nuisances. Improper garbage and refuse disposal will also result in the use of this classification.

Polluting

A "Polluting" system is one which is obviously permitting sewage to contaminate the groundwater or to reach the lake either by direct discharge through a pipe or ditch or over the ground

surface; or is proven to be polluting by means of water samples or tracer tests; or is permitting leachate from garbage to reach the lake.

Other

A system which is substandard in terms of size, location, design, or construction, or nature and depth of soil, but for which no evidence of pollution can be seen, nor which is a public health nuisance, or a system about which critical information cannot be determined, is classified as 'Other'.

The results from the 1971-72 Detection survey have been classified on this basis and are shown on Table 1.

(viii) Commencing in August, a tracer program was instituted in an attempt to determine the performance of some of those systems classified as 'Other'.

For this program, about a dozen establishments having disposal systems too close to the lake or with insufficient soil cover were selected at each of four locations: Rideau Ferry and Chaffey's locks on the Rideau System, Lake Weslemkoon, and Chemong Lake.

Three holes were drilled into the groundwater table, about 5 feet from the shore across the front of each selected property. These holes were then cased with P.V.C. piping and capped. Water samples were then taken from the holes and the lake to determine background bacteriological, chemical, and radioactive concentration levels.

A solution consisting of the chemical dyes, fluorescein and rhodamine B, and the radioactive isotope, tritium, was then injected into the outlet pipe of the septic tank.

Following the injection of the tracer solution, samples were taken each day, until September 15, for laboratory analysis of bacteriological, chemical, and tracer dye concentrations in the groundwater and lake. After September 15, the sampling

frequency was reduced to once a week. Sampling of selected holes was continued throughout the winter wherever possible.

In addition to water samples, the following data was also collected and recorded: a profile of the property was made; the elevation of the lake and groundwater was recorded at each sample; the number of occupants was determined at each sample; the temperature of the groundwater was recorded. In addition, precipitation records for the area were obtained.

Data collected from the tracer program will be analyzed and reported on at a later date.

D. Correction of Defective Systems

After the completion of the field detection survey, the files on establishments with defective systems (Polluters or Public Health Nuisances) were processed by the Abatement Staff for corrective action.

The files were re-examined and the original classification confirmed by the Abatement Technicians in the field.

Cottagers with defective systems were notified by letter of the results of the survey and requested to attend an interview with an Abatement Technician to discuss their problem.

During the interview the file was produced, the owner advised of the findings and his comments sought. Where the owner agreed with the findings, he was advised as to the proper corrections and asked to sign an Abatement Agreement form stating the corrections and a completion date after which a final inspection may be carried out.

If agreement was not obtained at the interview, a site inspection was arranged for later in the year so that the findings from the survey could be confirmed in the owner's presence. Following such a site inspection, the Abatement Agreement was usually signed.

E. Determination of In-Shore Lake Water Quality

As mentioned previously, water samples for bacteriological analysis were taken at each cottage and at inlets and outlets.

Samples for chemical analysis were sent to the Department of Health laboratory in Toronto.

Samples for the determination of tracer concentrations were sent to the Radiation Protection Laboratory in Toronto.

Bacteriological analysis of drinking water and shoreline samples was carried out by Department of Health Laboratories in Peterborough and Kingston and by two mobile laboratories, one operated by each of the above Provincial Laboratories.

F. Progress and Results

1. Detection of Defective Systems

During the period from mid-May to mid-September, 1971, a total of 5,837 waste disposal systems were inspected. Many of the establishments required several call-backs before the premises were found occupied. Not all premises on the lakes were surveyed since several premises remained unoccupied during the period of the survey on a particular lake.

Table 1 attached shows the results of these inspections in terms of the classifications of the disposal systems.

Tables 2 and 3 show the results of the shoreline bacteriological samples taken in conjunction with the detection survey.

Table 4 shows the results of the drinking water samples taken during the detection survey.

Table 5 shows the results of chemical analysis of the samples taken at inlets and outlets.

Table 6 is a summary of the abatement work.

The attached map shows the geographic location of the lakes surveyed in both 1970 and 1971.

2. Correction of Defective Systems

During 1971 five abatement technicians carried out 1,659 site visits on seventeen lakes. An additional 105 site visits on nine lakes were carried out by the Northern Ontario Public Health Service working under the direction of Abatement Control Personnel.

A total of 718 premises were inspected, 308 agreements signed and work on 220 premises completed in 1971. The majority of those who have signed an agreement and which have not yet completed the work (88) indicate the work will be completed early in 1972.

Included in the work above are all known polluters reported in the Thirteen Lakes Study which was carried out prior to 1970.

In addition to the work outlined above, abatement personnel provided assistance to the Regional Engineer - Eastern Region - in assessing and co-ordinating data obtained from the Varty Lake survey carried out by the regional field assistants.

In addition to supervising the field operations of the abatement technicians, the abatement engineer met with municipal officials and cottagers' associations to discuss the program and with contractors to organize abatement.

Considerable effort was also directed towards establishing a reliable holding tank pump-out service in various areas of the province with success in establishing such a service in the Kawarthas and Thousand Island areas.

During the year it was necessary to refer one case to the Department of Health's solicitor when attempts to effect correction at a commercial establishment were ignored.

3. Tracer Program

Results of the tracer program will be covered in a separate report.

Summary

The objective of the 1971-72 Detection Program - to inspect 4,000 disposal systems on the selected lakes, was exceeded.

Furthermore, there was a noticeable improvement in the quality of work over that of the 1970-71 season. The students were better trained and supervised. Additional work was carried out including soil borings, contacting owners have drinking water samples which tested unsatisfactory, preparing alphabetical listings of owners, maintaining description logs, and performing field classifications of many establishments.

Detection staff carried out an additional tracer program which involved considerable field work, including obtaining permission from owners to drill holes and add radioactive isotopes, drilling and casing about 150 holes into the groundwater, profile surveys of each property, and the taking, to November 30, 1971, of about 5,000 samples for the determination of tracer concentration, of about 5,000 samples for the determination of bacteriological quality, and of about 500 samples for the determination of chemical concentrations.

A particularly satisfying aspect of the 1971-72 program to date has been the co-operation and interest of the public, both those whose establishments were inspected or corrected and those with whom our program was discussed at meetings, conferences, and other opportunities.

It is apparent that Cottage Owners' Associations can, and will, perform a vital role in the prevention of further contamination of the natural environment.

TABLE 1

PRELIMINARY CLASSIFICATION OF SYSTEMS INSPECTED

1971 - 1972

LAKE OR RIVER	NUMBER OF SYSTEMS INSPECTED	CLASSIFICATION OF DETECTION RESULTS							
		SATISFACTORY SYSTEMS (No Further Action Indicated)		OTHER (Substandard or Insufficient Information)		UNSATISFACTORY SYSTEMS (Correction Required)			
						PUBLIC HEALTH NUISANCE		DIRECTLY POLLUTING	
		No.	%	No.	%	No.	%	No.	%
Muskoka Bay	39	28	71.8	8	20.5	2	5.1	1	2.6
Leonard	112	51	45.5	22	19.7	38	33.9	1	0.9
Buckhorn	174	110	63.2	31	17.8	32	18.4	1	0.6
Lower Buckhorn	43	20	46.5	16	37.2	7	16.3	0	0.0
Clear	24	9	37.5	11	45.8	4	16.7	0	0.0
Lovesick	26	7	26.9	6	23.1	11	42.3	2	7.7
Stony	217	81	37.4	52	23.9	82	37.8	2	0.9
Chemong	830	553	66.6	182	21.9	87	10.5	8	1.0
Pigeon	310	230	74.1	34	11.0	43	13.9	3	1.0
Mazinaw	276	150	54.4	57	20.6	64	23.2	5	1.8
Macavoy	5	5	100.0	0	0.0	0	0.0	0	0.0
Weslemkoon	268	44	16.4	38	14.2	181	67.5	5	1.9
Charleston	541	169	31.2	164	30.4	182	33.6	26	4.8
Loughborough	408	87	21.3	102	25.0	202	49.5	17	4.2
Otty	329 333?	127	38.6	106	32.2	90 146	27.4	6	1.8
Big Rideau	775	217	28.0	334	43.1	203	26.2	21	2.7
Upper Rideau	322	85	26.4	145	45.0	84	26.1	8	2.5
Newboro	168	34	20.2	72	42.9	57	33.9	5	3.0
Clear	45	8	17.8	27	60.0	10	22.2	0	0.0
Loon	14	4	28.6	6	42.9	3	21.4	1	7.1
Mosquito	16	3	18.8	6	37.5	7	43.7	0	0.0
Benson	12	1	8.3	6	50.0	5	41.7	0	0.0
Indian	131	22	16.8	83	63.4	18	13.7	8	6.1
Opinicon	180	52	28.9	89	49.5	28	15.5	11	6.1
Sand	189	30	15.9	94	49.7	63	33.3	2	1.1
Whitefish	35	19	54.3	7	20.0	8	22.8	1	2.9
Little Cranberry	102	41	40.3	27	26.4	27	26.4	7	6.9
Cranberry	66	27	40.9	18	27.3	19	28.8	2	3.0
Dog	182	42	23.1	60	33.0	65	35.7	15	8.2
	5839	2256	38.6	1803	30.9	1622	27.8	158	2.7

10.

'1974 cottage count 370 + 3 resorts

TABLE 2
SHORELINE BACTERIOLOGICAL TEST RESULTS
1971-1972

LAKE OR RIVER	TOTAL COLIFORMS PER 100 ML. M.F.**												TOTAL	
	0		1-80		81-1000		1001-2400		2401-8000		8000+ **			
	NO. OF SAMPLES AND PERCENTAGE OF TOTAL NUMBER ON LAKE													
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Number of Samples	%
A. <u>Muskoka Area</u>														
Muskoka Bay	0	0.0	10	11.9	62	73.8	10	11.9	2	2.4	0	0.0	84	100.0
Leonard	65	35.7	65	35.7	45	24.7	6	3.3	1	0.6	0	0.0	182	100.0
B. <u>Trent Waterways System</u>														
Buckhorn	0	0.0	28	10.0	149	53.2	63	22.5	38	13.6	2	0.7	280	100.0
Lower Buckhorn	2	2.4	12	14.5	51	61.4	15	18.1	2	2.4	1	1.2	83	100.0
Clear	3	6.1	13	26.5	27	55.2	5	10.2	0	0.0	1	2.0	49	100.0
Lovesick	0	0.0	3	7.3	29	70.7	5	12.2	4	9.8	0	0.0	41	100.0
Stony	2	0.5	91	21.2	256	59.8	56	13.1	17	4.0	6	1.4	428	100.0
Chemong	5	0.3	88	5.9	892	60.1	293	19.7	188	12.7	20	1.3	1486	100.0
Pigeon	5	1.1	38	8.0	229	48.4	107	22.6	85	18.0	9	1.9	473	100.0
C. <u>Mississippi Valley Watershed</u>														
Mazinaw	58	10.8	340	63.3	125	23.3	9	1.7	5	0.9	0	0.0	537	100.0
Macavoy	0	0.0	4	36.4	7	63.6	0	0.0	0	0.0	0	0.0	11	100.0
D. <u>Bancroft Area</u>														
Weslehkoon	19	3.4	429	76.9	100	17.9	6	1.1	3	0.5	1	0.2	558	100.0
E. <u>Rideau Valley Watershed</u>														
Otty	58	9.7	472	78.5	60	9.9	10	1.7	0	0.0	1	0.2	601	100.0
Big Rideau	68	8.0	702	82.2	75	8.8	3	0.3	5	0.6	1	0.1	854	100.0
Upper Rideau	5	1.1	266	59.3	157	35.2	15	3.3	3	0.7	2	0.4	448	100.0
F. <u>Cataraqui Region</u>														
Newboro	10	4.2	164	69.5	59	25.0	3	1.3	0	0.0	0	0.0	236	100.0
Clear	5	7.2	43	62.3	18	26.1	0	0.0	2	2.9	1	1.5	69	100.0
Loon	1	5.3	15	78.9	3	15.8	0	0.0	0	0.0	0	0.0	19	100.0

* M.F. means membrane filter method

** The number indicates more than 8000 but uncounted above 8000

TABLE 2 (CONT.)

SHORELINE BACTERIOLOGICAL TEST RESULTS (1971-72)

LAKE OR RIVER	TOTAL COLIFORMS PER 100 ML. M. F.												TOTAL	
	0		1-80		81-1000		1001-2400		2401-8000		8000 +			
	NO. OF SAMPLES AND PERCENTAGE OF TOTAL NUMBER ON LAKE													
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No. of Samples	%
<u>Cataraqui Region</u>														
Mosquito	2	8.7	16	69.5	3	13.1	0	0.0	2	8.7	0	0.0	23	100.0
Benson	1	6.3	12	75.0	3	18.7	0	0.0	0	0.0	0	0.0	16	100.0
Indian	13	6.8	127	66.5	49	25.7	1	0.5	1	0.5	0	0.0	191	100.0
Opinicon	12	5.3	143	63.3	65	28.8	4	1.8	1	0.4	1	0.4	226	100.0
Sand	8	3.1	182	69.7	65	24.9	4	1.5	2	0.8	0	0.0	261	100.0
Whitefish	7	13.2	35	66.1	8	15.1	3	5.6	0	0.0	0	0.0	53	100.0
Little Cranberry	30	22.4	98	73.1	4	3.0	0	0.0	2	1.5	0	0.0	134	100.0
Cranberry	23	12.6	134	73.6	23	12.6	1	0.6	1	0.6	0	0.0	182	100.0
Dog	25	6.9	288	79.8	37	10.2	6	1.7	3	0.8	2	0.6	361	100.0
Charleston	89	8.6	823	79.4	102	9.9	13	1.3	7	0.7	1	0.1	1035	100.0
Loughborough	93	12.2	601	79.0	56	7.4	6	0.8	4	0.5	1	0.1	761	100.0
	609	6.3	5242	54.2	2759	28.5	644	6.6	378	3.9	50	0.5	9682	100.0
														12.

TABLE 3
SHORELINE BACTERIOLOGICAL TEST RESULTS
1971-1972

LAKE OR RIVER	FAECAL COLIFORMS PER 100 ML. M.F.												TOTAL	
	0		1-20		21-100		101-1000		1001-3000		3000+			
	NO. OF SAMPLES AND PERCENTAGE OF TOTAL NUMBER ON LAKE													
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Number of Samples	%
A. Muskoka Area														
Muskoka Bay	23	27.4	41	48.8	13	15.5	7	8.3	0	0.0	0	0.0	84	100.0
Leonard	127	69.8	46	25.3	7	3.8	2	1.1	0	0.0	0	0.0	182	100.0
B. Trent Waterways System														
Buckhorn	67	23.9	88	31.5	67	23.9	52	18.6	4	1.4	2	0.7	280	100.0
Lower Buckhorn	14	16.9	43	51.8	20	24.1	5	6.0	0	0.0	1	1.2	83	100.0
Clear	23	47.0	15	30.6	4	8.2	6	12.2	1	2.0	0	0.0	49	100.0
Lovesick	9	21.9	5	12.2	22	53.7	5	12.2	0	0.0	0	0.0	41	100.0
Stony	201	46.9	139	32.5	66	15.4	19	4.5	1	0.2	2	0.5	428	100.0
Chemong	350	23.6	455	30.6	425	28.6	234	15.8	20	1.3	2	0.1	1486	100.0
Pigeon	135	28.5	157	33.2	110	23.3	60	12.7	9	1.9	2	0.4	473	100.0
C. Mississippi Watershed														
Mazinaw	224	41.7	229	42.6	65	12.1	18	3.4	0	0.0	1	0.2	537	100.0
Macavoy	2	18.2	2	18.2	6	54.5	1	9.1	0	0.0	0	0.0	11	100.0
D. Bancroft Area														
Weslemkoon	287	51.4	232	41.6	33	5.9	6	1.1	0	0.0	0	0.0	558	100.0
E. Rideau Valley Watershed														
Otty	340	56.0	230	38.0	25	4.1	10	1.7	0	0.0	1	0.2	606	100.0
Big Rideau	276	32.3	444	52.0	115	13.5	14	1.6	3	0.4	2	0.2	854	100.0
Upper Rideau	44	9.8	164	36.6	203	45.3	29	6.5	5	1.1	3	0.7	448	100.0
F. Cataraqui Region														
Newboro	81	34.3	117	49.6	36	15.3	2	0.8	0	0.0	0	0.0	236	100.0
Clear	33	47.8	24	34.8	7	10.1	4	5.8	1	1.5	0	0.0	69	100.0
Loon	7	36.8	10	52.6	1	5.3	1	5.3	0	0.0	0	0.0	19	100.0
Mosquito	9	39.0	10	43.5	2	8.7	0	0.0	1	4.4	1	4.4	23	100.0
Benson	10	62.5	6	37.5	0	0.0	0	0.0	0	0.0	0	0.0	16	100.0
Indian	71	37.1	87	45.6	28	14.7	4	2.1	1	0.5	0	0.0	191	100.0

TABLE 3 (CONT.)
SHORELINE BACTERIOLOGICAL TEST RESULTS (1971-72)

LAKE OR RIVER	FAECAL COLIFORMS PER 100 ML. M. F.												TOTAL	
	0		1-20		21-100		101-1000		1001-3000		3000 +			
	NO. OF SAMPLES AND PERCENTAGE OF TOTAL NUMBER ON LAKE													
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No. of Samples	%
<u>Cataraqui Region</u>														
Opinicon	46	20.4	107	47.4	55	24.3	15	6.6	1	0.4	2	0.9	226	100.0
Sand	68	26.0	123	47.1	54	20.7	14	5.4	1	0.4	1	0.4	261	100.0
Whitefish	29	54.8	19	35.9	5	9.3	0	0.0	0	0.0	0	0.0	53	100.0
Little Cranberry	71	53.0	54	40.3	4	3.0	4	3.0	0	0.0	1	0.7	134	100.0
Cranberry	77	42.3	76	41.8	25	13.7	4	2.2	0	0.0	0	0.0	182	100.0
Dog	113	31.3	192	53.2	33	9.1	20	5.5	2	0.6	1	0.3	361	100.0
Charleston	424	41.0	480	46.3	101	9.8	27	2.6	1	0.1	2	0.2	1035	100.0
Loughborough	308	40.5	371	48.7	59	7.8	19	2.5	1	0.1	3	0.4	761	100.0
	3469	35.8	3966	41.0	1591	16.4	582	6.0	52	0.5	27	0.3	9687	100.0

TABLE 4
DRINKING WATER SAMPLES
1971-1972
COLIFORMS PER 100 ML. M.F.

LAKE OR RIVER	SATISFACTORY		UNSATISFACTORY					TOTAL SAMPLES
	Total 0 Faecal 0	Total 1-4 Faecal 0	Total 5-80 Faecal 0	Total 80+ Faecal 0	Total 1-80 Faecal 1-80	Total 80+ Faecal 1-80	Total 80+ Faecal 80+	
Muskoka Bay	8	0	1	0	0	0	0	9
Leonard	20	1	3	1	1	0	0	26
Buckhorn	57	3	12	6	7	10	4	99
L. Buckhorn	8	0	1	4	0	2	0	15
Clear (Trent)	9	2	2	1	0	1	0	15
Lovesick	1	0	1	4	0	1	1	8
Stony	54	0	10	6	2	1	3	76
Chemong	325	12	57	39	10	22	13	478
Pigeon	93	7	22	22	6	10	9	169
Matinaw	52	6	10	2	12	7	5	94
Macavoy	2	0	0	0	0	0	0	2
Weslemkoon	24	7	29	5	11	1	0	77
Charleston	73	12	14	3	15	1	2	120
Loughborough	84	2	11	2	11	5	2	117
Otty	48	5	11	5	3	1	0	73
Big Rideau	129	16	42	15	19	8	5	234
Upper Rideau	64	14	26	15	19	9	4	151
Newboro	14	2	7	3	6	1	0	33
Clear (Cataraqui)	3	0	1	1	1	0	1	7
Loon	0	0	0	0	0	0	0	0
Mosquito	1	0	0	1	0	1	0	3
Benson	0	0	1	0	1	0	0	2
Indian	37	1	16	1	10	0	0	65
Opinicon	37	3	6	9	4	2	1	62
Sand	26	3	15	3	9	1	0	57
Whitefish	6	1	1	4	2	0	0	14
L. Cranberry	24	2	3	0	1	1	1	32
Cranberry	20	1	1	2	3	2	1	30
Dog	37	4	7	3	5	4	1	61
Total	1256	104	310	157	158	91	53	2129
Percent of Total Samples	58.9	4.9	14.6	7.4	7.4	4.3	2.5	100.0
Total	1360		769					2129
Percent of Total Samples	63.9		36.1					100.0

- * Note 1. Owners of establishments where laboratory analysis of drinking water sample was unsatisfactory were notified to that effect by mail.
2. The designations "Satisfactory" and "Unsatisfactory" are in accord with the drinking water sample interpretation chart, as explained in the pamphlet "Understanding the Bacteriological Report on your Drinking Water", produced by the Communications Branch for the Public Health Division, Ontario Department of Health, and "Your Drinking Water", produced by the Laboratory Services Branch, Ontario Department of Health.

TABLE 5A
CHEMICAL RESULTS OF INLETS & OUTLETS (P.P.M.)
1971-1972

LAKE OR RIVER	NUMBER SAMPLES TAKEN	FREE AMMONIA *			ALBUMINOID AMMONIA *			NITRATE *				CHLORIDE **			NUMBER TESTS MADE
		<0.001	0.001 to 0.010	>0.010	<0.015	0.016 to 0.100	>0.10	<0.001	0.001 to 0.009	0.010 to 0.100	>0.100	≤5	5.1 to 10	>10	
Leonard	8	1	0	0	1	0	0	1	0	0	0	-	-	-	3
Upper Buckhorn	5	1	0	4	-	-	-	3	1	1	0	-	-	-	10
Lower Buckhorn	10	0	2	8	-	-	-	7	1	1	1	-	-	-	20
Clear	3	3	0	0	3	0	0	3	0	0	0	-	-	-	9
Stony	27	14	0	13	-	-	-	15	8	4	0	-	-	-	54
Chemong	33	22	4	7	-	-	-	15	8	5	5	-	-	-	66
Mazinaw	21	19	0	2	-	-	-	14	7	0	0	-	-	-	42
Weslemkoon	35	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Upper Rideau	7	7	0	0	7	0	0	2	1	4	0	-	-	-	21
Otty	5	5	0	0	-	-	-	5	0	0	0	-	-	-	10
Newboro	4	4	0	0	4	0	0	4	0	0	0	3	0	0	15
Indian	9	9	0	0	8	1	0	9	0	0	0	7	0	0	34
Opinicon	4	4	0	0	4	0	0	4	0	0	0	4	0	0	16
Sand	4	4	0	0	3	1	0	4	0	0	0	4	0	0	16
Cranberry	10	10	0	0	9	1	0	7	2	1	0	10	0	0	40
Dog	12	8	2	2	7	5	0	6	1	4	1	11	1	0	48
Loughborough	59	42	5	12	20	37	2	54	3	2	0	48	10	0	235
Charleston	20	20	0	0	-	-	-	18	2	0	0	-	-	-	40

* Expressed as Nitrogen (N)

** Expressed as Cl

TABLE 5B
CHEMICAL RESULTS OF INLETS & OUTLETS (P.P.M.)
1971-1972

LAKE OR RIVER	NUMBER SAMPLES TAKEN	PH			A.B.S. (M.B.A.)			PHOSPHATE (PO ₄)				NITRATE *					NUMBER TESTS MADE
		< 7 ACIDIC	7	> 7 BASIC	< 0.025	0.025 to 0.100	> 0.100	< 0.025	0.025 to 0.099	0.100 to 0.500	> 0.500	< 0.1	0.10 to 0.40	0.41 to 1.0	1.10 to 10.0	> 10.0	
Leonard	8	1	0	0	8	0	0	7	1	0	0	1	0	0	0	0	18
Upper Buckhorn	5	0	0	5	5	0	0	3	1	1	0	4	0	1	0	0	20
Lower Buckhorn	10	0	0	10	10	0	0	7	3	0	0	7	2	1	0	0	40
Clear	3	0	0	3	3	0	0	3	0	0	0	3	0	0	0	0	12
Stony	27	0	0	27	27	0	0	21	6	0	0	25	1	1	0	0	108
Chemong	33	0	0	33	32	1	0	22	4	7	0	22	7	2	2	0	132
Mazinaw	21	8	6	7	19	0	2	19	0	2	0	19	2	0	0	0	84
Weslemkoon	35	24	6	5	-	-	-	33	0	1	0	35	0	0	0	0	104
Upper Rideau	7	0	0	6	7	0	0	3	4	0	0	4	3	0	0	0	27
Otty	5	0	0	5	5	0	0	5	0	0	0	5	0	0	0	0	20
Newboro	4	0	0	4	4	0	0	4	0	0	0	4	0	0	0	0	16
Indian	9	0	0	9	9	0	0	9	0	0	0	9	0	0	0	0	36
Opinicon	4	0	0	4	4	0	0	4	0	0	0	4	0	0	0	0	16
Sand	4	0	0	4	4	0	0	4	0	0	0	4	0	0	0	0	16
Cranberry	10	0	0	10	10	0	0	10	0	0	0	10	0	0	0	0	40
Dog	12	0	0	12	11	1	0	1	6	5	0	11	1	0	0	0	48
Loughborough	59	5	5	49	32	2	4	34	3	1	0	58	1	0	0	0	194
Charleston	20	0	0	20	17	1	2	14	6	0	0	20	0	0	0	0	80

* Expressed as μ

SUMMARY OF ABATEMENT WORK 1971

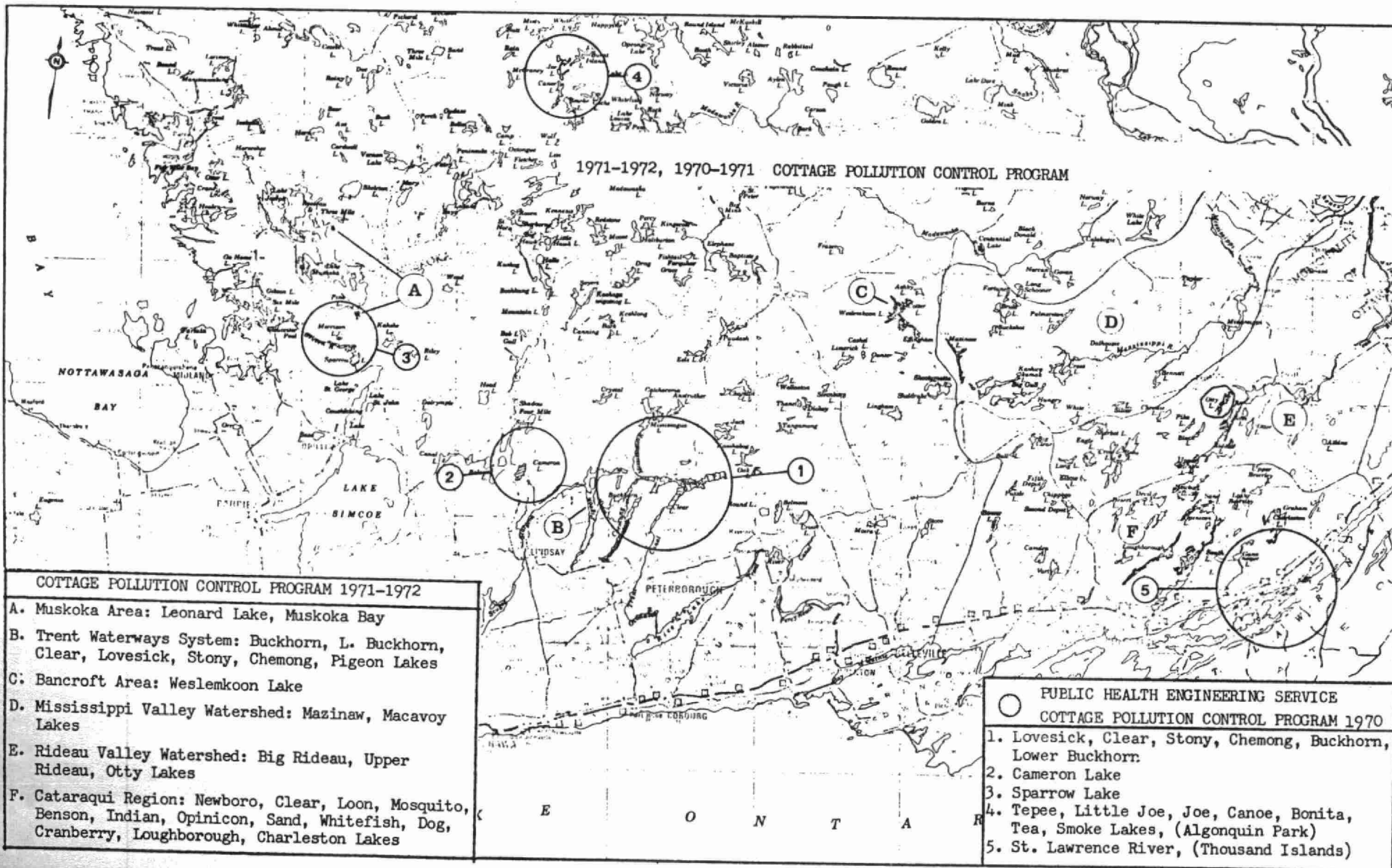
1. LAKE	OFFICE WORK		FIELD WORK				
	2. Letters of Notification	3. Interviews	CONFIRMING INSPECTIONS			7. Agreements	8. Work Completed
			4. P.H.N.	5. Poll.	6. Total		
otter							
Clear	17	15	16	1	17	14	12
Stony	111	108	161	16	177	94	52
Lovesick	13	15	22	6	28	9	3
L. Buckhorn	46	32	58	4	62	22	3
U. Buckhorn	21	16	25	7	32	11	7
Chemong	18	16	20	8	28	10	3
Cameron	71	62	59	12	71	26	16
Sparrow	29	27	29	1	30	24	18
Thousand Islands	96	72	32	73	105	67	41
Otter	1	18	17	6	23	13	1
Six Mile		2		2	2	1	
Bass				4	4	1	
Eugenia		3		3	3	3	3
Jack		1	14	4	18	1	
Steenburg	8	7		8	8	5	1
Beverly		9	2	7	9	5	
Cache		23	24	10	34		19
Two Rivers		1	1		1		1
Rock		13	10	3	13		10
Smoke		22	26	2	28		17
Teepee		1	1		1		1
Joe & Little Joe			4		4		1
Canoe			13	1	14	2	5
Whitefish			6		6		6
Totals	431	463	540	178	718	308	220

Recapitulation

Inspections (col.6) = 718
 " (col.8) = 220
 " (note 1) = 250
 " (note 2) = 576
 1764

In addition to the above-noted inspections, there were:

- 1) 250 field inspection surveys to confirm conditions found prior to 1970 on Riley Lake and Otter Lake.
- 2) 576 field inspections for which agreement was obtained at a subsequent inspection visit.



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